OPTONICA

The art of silence

HiFi 1981/82

To Be Seen, But Never Heard.

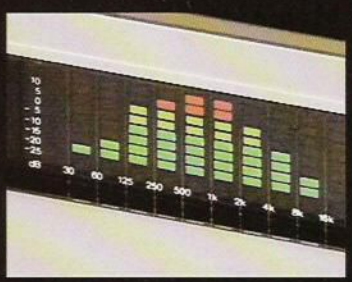
At Optonica, we have long believed that the audiophile wants to hear his music, NOT his audio equipment. So we've made it our goal to develop components that will carry out all the functions required of an audio system, yet never add – or subtract – even the slightest hint of colouration. We want to make sure we reproduce every nuance, every overtone, exactly as it was in the original performance. In short, although we design our equipment to look great, we really don't want it to be heard.

So when the concept of digital processing was first introduced to the audio world, we quickly realized the potential of such a system, where all musical information would be registered in plus/minus terms, eliminating error and ensuring a striking sense of musical "presence". And while the rest of the audio world hesitated, Optonica plunged into this great new field wholeheartedly.

We realized that digital technology offers opportunities for tremendous improvements in three basic areas of the audio realm: performance, functions and display. With work progressing in all three of these fields, our first breakthrough – the microprocessor-controlled tape deck christened as our first "Electronic Tape Processor" – was soon followed by another: our prototype of the world's first PAL-system PCM adaptor. Now the amplifier in our new System 105 shows the great strides we've made in eliminating mechanical elements from the audio signal path. With its electronic volume controls and DC amp circuitry, the SM-105 not only completely does away with coupling elements, but also with lead wires and contacts as well.

And the work goes on. The name Optonica was created as a symbol of the combination of advanced optics and electronics employed in high-quality audio components produced by Sharp – one of the largest and most research-oriented electronics manufacturers in the world. And at Optonica we intend to live up to our name, pushing digital audio technology to its limits. Just to make sure that Optonica audio equipment will always be seen – but never heard.

OPTONICA 9100 Series



The audio spectrum analyzer in the SX-9100H/HB

Separate right and left Toroidal power transformers used in SX-9100H/HB

SX-9100H/HB

Stereo Power Amplifier with Pure FET Amp Circuitry

2 x 130W RMS output power (1kHz at 4 ohms with 0.005% T.H.D.)

The development of a new high-voltage MOS FET enabled Optonica to use only the best amplifier element available – the FET – in all circuitry related to the audio signal in the power amplifier of the 9100 Series. The addition of pure DC circuitry and dual-FET cascode differential input and drive stages assures audio fidelity. Stability is guaranteed by the Toroidal power transformer and dual output stage power supplies. An innovative heat pipe makes it possible to place the MOS FETs near the circuit board to ensure optimum phase and frequency response characteristics. And to complement its superior performance levels, the SX-9100H/HB offers a unique audio spectrum analyzer and 3-colour fluorescent digitron power displays for precision monitoring.

*"Dolby" and the "Double-D" symbol are trademarks of Dolby Laboratories, Inc.

SO-9100H/HB

Stereo Preamplifier with Pure FET Amp Circuitry

RIAA Deviation: ±0.2dB (20Hz - 20kHz).

The preamplifier in the 9100 Series also relies on the superiority of the FET in all stages of its circuitry for audio immediacy close to vacuum-tube levels with efficiency and distortion suppression up to transistor standards. Transient characteristics are enhanced by the pure DC circuitry, while linearity is improved with Optonica's exclusive enhanced differential first-stage equalizer circuitry. An MC head amp that is also ICL pure FET circuitry works with 3-stage phono input impedance and capacitance selectors to ensure extra versatility in phono hook-ups.

ST-9100H/HB

FM/AM Stereo Synthesizer Tuner with Microprocessor Tuning System

FM DIN Sensitivity (mono, 40kHz dev., S/N 26dB): 1.4μV.

The quartz PLL synthesizer tuning system in the ST-9100H/HB ensures super-precise, super-stable reception. This accuracy is fully utilized thanks to the incorporation of high-selectivity linear-phase ceramic IF filters and a precision pilot signal canceller. The addition of a microprocessor to the impressive performance guaranteed by this advanced system greatly diversifies and simplifies tuning operations. Frequency range and Zone Search Systems, direct frequency tuning, an auto search system and 10 presettable station memories are all provided. An array of other sophisticated features finishes off this picture of tuning perfection.

RT-9100H/HB

Electronic Tape Processor with 2-Motor, Dual-Capstan Drive, Quartz PLL Servo Capstan Motor, APMS, APSS and Remote Control

Wow & Flutter: ±0.12% (DIN 45 500).

The RT-9100H/HB has been designed to provide the best possible performance with the ultimate in convenience and control. To optimize performance, it has a 2-motor closed-loop dual-capstan drive system with a quartz PLL servo capstan motor, a microprocessor-controlled tape tension adjustment system, a 4-head design with dual Sendust recording and playback heads, a 4-position tape selector plus double Dolby* circuitry. Then, to maximize user control, this unit provides Sharp's unique APMS (Auto Programmable

Music Selector) to allow complete freedom in programming tape selection playback order, plus APSS (Auto Program Search System) for one-touch skipping and repetition of songs. Unsurpassed convenience is also ensured with a host of advanced functions, including microprocessor solenoid controls and a remote control system.

RP-9100H/HB

Direct Drive Stereo Turntable with Quartz Double-Locked Motor, APMS and Remote Control

Wow & Flutter: ±0.045% (DIN 45 507)
This revolutionary turntable combines maximum audio fidelity with unprecedented operational versatility. Performance is optimum with a quartz double-locked servo system, Mono Torque DC coreless platter motor, direct drive, separate arm motor and J-shaped tonearm. APMS (Auto Programmable Music Selector) then sets the listener free to program song playback order, while a full-function remote control unit and auto record size-speed selector maximize convenience. Extra advanced features include a special sensor arm, a digital

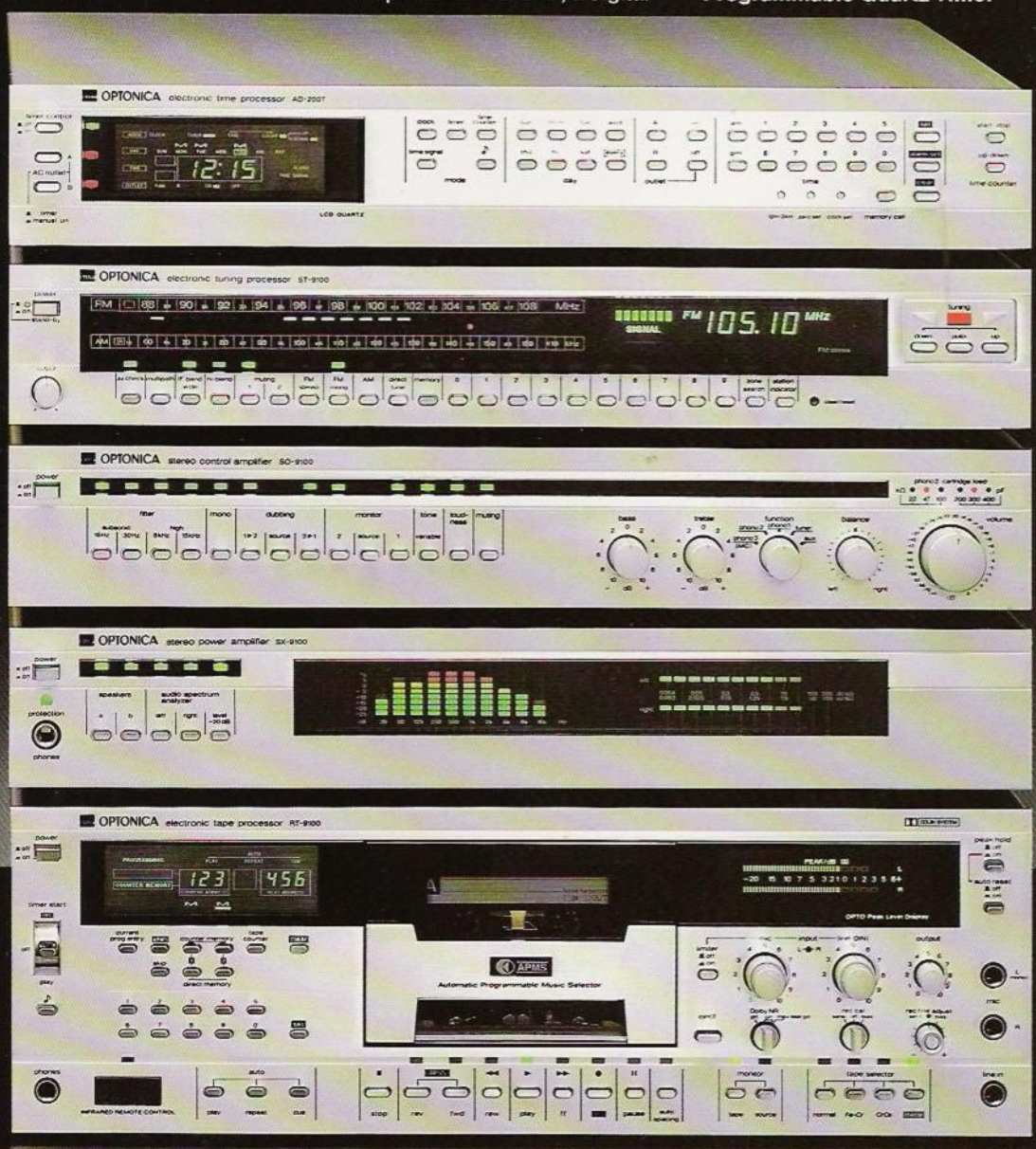
APMS sensor tonearm

speed accuracy display and soft-touch front-panel controls.

AD-200TH/THB

Programmable Quartz Timer

Programming capacity: up to 42 automatic operations per week. To provide maximum versatility in automatic stereo system operation, this quartz timer offers 4 AC outlets wired in two independently-programmable sets, plus a special socket for synchronization of the cassette running time counter with the tape transport mechanism of the RT-9100H/HB or the RT-7100H/HB. The core of this precision timekeeping system is the quartz oscillator. Programming is by day of the week with an 'every day' function also included. The time counter can be used to keep track of either the running-time or the remaining-time of a cassette and includes a pause function that stops the counter during breaks.



Models with H/HB following the model number are available in brown metallic as well as in silver metallic.

OPTONICA 7100 Series

SM-7100H/HB

Integrated Stereo Amplifier with Toroidal Power Transformer

2 x 70W RMS output power (1kHz at 4 ohms with 0.005% T.H.D.).

The integrated stereo amplifier for the 7100 Series rivals separate control and power amps in terms of both performance and features. Optonica's Toroidal power transformer and all stages direct coupled pure complementary ICL amp circuitry assure an ample power supply and audio fidelity. At the same time, transient characteristics are enriched and distortion is dramatically suppressed. Stability is maintained with DC equalizer and power amp circuitry plus differential FET input stages and dual (plus/minus) power supplies in the equalizer and tone amps. Other features include 12-LED power meters, 2-step high and low filters, tone defeat, 2-way dubbing, audio muting, loudness and speaker selector switches, along with tape monitoring for both tape inputs.

ST-7100H/HB

FM/AM Stereo Tuner

FM DIN sensitivity (mono, 40kHz dev., S/N 26dB): 1.4μV.

This tuner was designed to provide superior reception quality by making full use of advanced elements, including 3 dual-gate MOS FETs in the FM front end, which also employs a 5-gang variable capacitor, plus a low-noise IF stage with a special noise-suppressing IC, PLL MPX circuit and pilot signal canceller. A quadrature detector is another of the advanced elements incorporated to lower distortion while widening the frequency and dynamic ranges. A digital frequency display and LED centre tuning/signal-strength indicators ensure pinpoint tuning accuracy. A multipath switch is provided to minimize the effects of multipath distortion. Other features include a variable air check calibrator, FM wide/normal IF band selector, auto-lock tuning, FM muting and output level control.

RT-7000H/HB

Stereo Cassette Tape Deck with 2-Motor Direct Drive System and Microprocessor Full Logic Solenoid Control

Direct drive system for tape deck suppresses tape transport error and ensures a longer service life.

Wow & Flutter: ±0.13% (DIN 45 500)

To ensure performance, reliability and convenience, the RT-7000H/HB incorporates a 2-motor direct drive system that suppresses tape transport error while ensuring longer service life by eliminating error- and wear-prone transmission systems. Reliable, soft-touch transport control is provided with a microprocessor full logic solenoid system. Dolby* Noise Reduction and an MPX filter switch enhance overall performance. Metal tape capability also lets you take advantage of the broader frequency response, improved signal-to-noise ratio, lower distortion and greater dynamic range of metal tapes. APSS, fluorescent level meters with a peak hold function, an output level control and automatic spacing control for simplified insertion of blank spaces for use with APSS add to ease of operation.

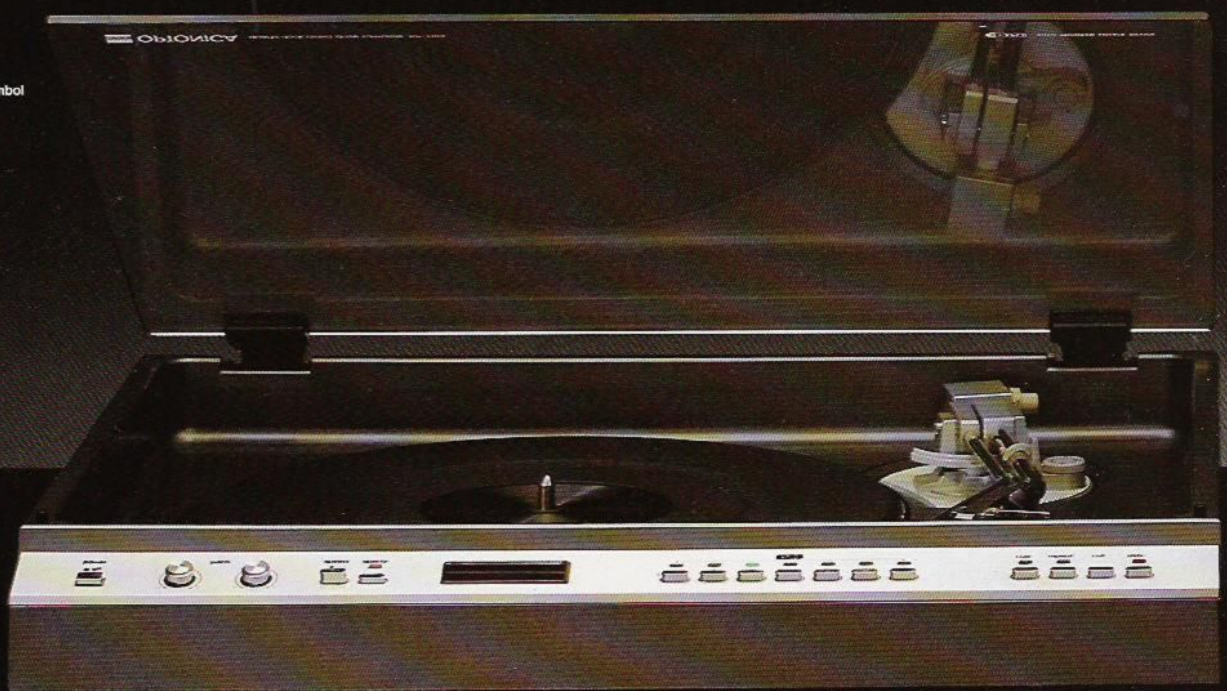
RP-7100H/HB

Direct Drive Stereo Turntable with Quartz-Locked Motor and APLD

Wow & Flutter: ±0.045% (DIN 45 507)

Audio excellence plus operational convenience have been designed into the RP-7100H/HB. To eliminate rumble and cogging, and also ensure super-precise rotational speed, the direct drive system employs a Mono Torque DC coreless motor under quartz-locked servo control.

A separate arm motor and J-shaped tonearm with an anti-skating device ensure optimum trackability. Optonica's exclusive APLD mechanism for programming of the desired number of blank spaces to be skipped forward on a record and an automatic record size detector offer unique operating convenience. A special sensor arm, soft-touch controls, stroboscope and pitch controls, plus LED indicators for play, cue, repeat and stroboscope are just a few of the advanced features included.



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Models with H/HB following the model number are available in brown metallic as well as in silver metallic.

RT-7100H/HB

RT-7100H

Electronic Tape Processor with 2-Motor Drive, APMS and APSS

Wow & Flutter: ±0.14% (DIN 45 500)

The outstanding performance of this sophisticated electronic tape processor is aided by the microprocessor-controlled tape tension adjustment system that optimizes tape-to-head contact. At the same time, the 2-motor drive system guarantees rotational speed stability while the Dolby* Noise Reduction system acts to suppress hiss. To provide true tape versatility, the RT-7100H/HB is equipped with APMS for complete freedom in programming tape selection playback order, APSS for one-touch skipping or repetition of desired selections, a tape counter and an auto space button that allows blank spaces to be inserted for use with APMS and APSS. Microprocessor-controlled solenoid controls, plus 2-colour fluorescent level meters with peak hold and reset functions are also provided.

AD-200TH/THB

Programmable Quartz Timer

This quartz timer controls the 7100 Series and is explained on page 5.

Models with H/HB following the model number are available in brown metallic as well as in silver metallic.

OPTONICA 5200 Series

SM-5200H/HB

Integrated Stereo Amplifier
2 x 40W RMS output power (1kHz at 4 ohms with 0.09% T.H.D.).
The amplifier for the 5200 Series offers the type of circuitry and features usually found in the more sophisticated models. ITL/OTL/OCL (input transformerless/output transformerless/output capacitorless) power amp circuitry helps keep distortion to a minimum, while improving amplifier performance, even with the ample power rating of this unit. The SM-5200H/HB is equipped with a 4-position speaker switch enabling a variety of listening arrangements with two speaker systems, a loudness switch for natural-sounding performance at low volume levels, a subsonic filter for extra audio clarity and a mode switch for monaural as well as stereo reproduction. For extra ease, LEDs indicating the operating status of each pushbutton are provided on the front panel.

ST-5200H/HB

FM/LW/MW Stereo Synthesizer Tuner with Microprocessor Tuning System
FM DIN sensitivity (mono, 40kHz dev., S/N 26dB): 1.6μV.
The synthesizer tuning system employed in this 3-band stereo tuner minimizes error and drift by breaking down a reference frequency and using it to synthesize the tuning frequency. As a result, extremely stable, highly accurate reception is ensured. An easy-to-read digital frequency tuning display indicates the tuned frequency to enable pinpoint tuning accuracy. The auto search tuning system allows the synthesizer to be set to stop automatically at the nearest station in the chosen direction for effortless tuning. 10 presettable station memories can be set for one-touch tuning of favourite stations. LED tuning meters facilitate pinpoint tuning accuracy and, when used with the FM air check calibrator, allow simplified setting of deck input levels for FM recordings. Soft-touch controls assure smooth operation.

Synthesizer tuning system provides extremely stable, highly accurate reception.

RT-5200H/HB

Stereo Cassette Tape Deck with 2-Motor Drive System and Microprocessor Full Logic Solenoid Control System
Wow & Flutter: ±0.18% (DIN 45 500)
Convenience and performance are guaranteed by the microprocessor full logic solenoid transport control providing greater reliability with smoother, softtouch control of complex tape transport functions. The 2-motor drive system adds to performance by assuring speed stability. For added convenience, APSS permits one-touch skipping or repetition of desired selections. The automatic spacing function allows blank spaces to be inserted for use with APSS. Dolby* Noise Reduction significantly improves the signal-to-noise ratio, while the MPX filter removes any remaining pilot signal from FM broadcasts. Metal tape capability lets you take full advantage of the superior performance ensured by metal tapes, while a 4-position tape selector facilitates setting for optimum performance with CrO_2, FeCr and normal tapes as well as metal tape.
A fluorescent peak level display is also provided for extra monitoring ease.

RP-5200H/HB

Double Direct Drive Stereo Turntable
Wow & Flutter: 0.06% (DIN 45 507)
With its direct drive tonearm motor, the RP-5200H/HB has greatly enhanced tonearm trakking accuracy, while the direct drive DC turntable motor assures extra-steady platter rotation. The direct drive tonearm system floats the tonearm over a record and then gently lets it down on the record at the touch of a control switch. For extra protection, the solenoid will immediately lift the tonearm from the record if

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Double direct drive assures enhanced tonearm tracking accuracy with extra-steady rotation.

RP-5100H

RP-5100HB

any malfunction occurs. With soft-touch controls plus a microprocessor to offer computer-accurate control of all turntable features, instant response to all commands is ensured. A statically-balanced straight tonearm provides just the right stylus pressure and trackability. A convenient repeat key allows you to listen to a record again without having the tonearm return to the resting position.

RP-5100H/HB

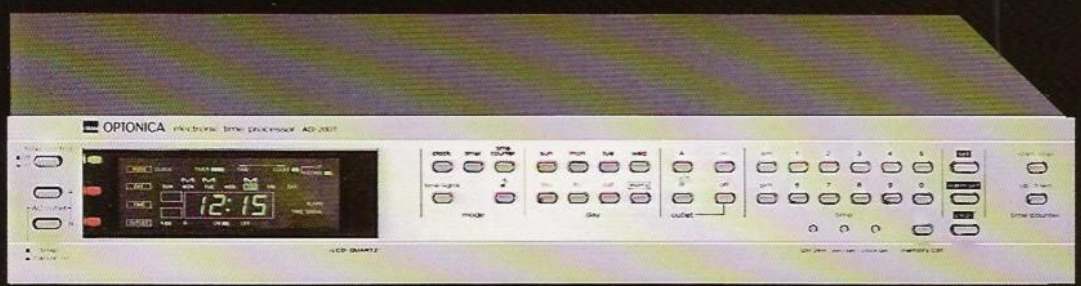
Direct Drive Stereo Turntable

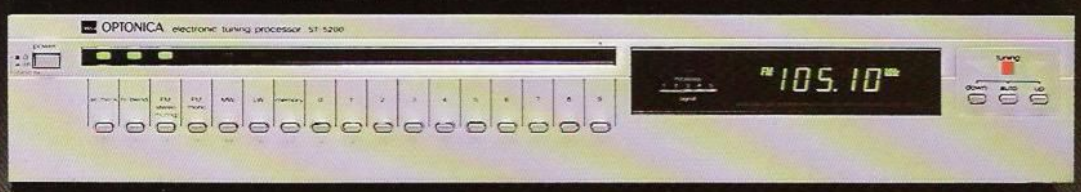
Wow & Flutter: ±0.06% (DIN 45 507). The first step in ensuring performance stability in the RP-5100H/HB was inclusion of the direct drive system with its FG servo Mono Torque DC coreless motor. This precision drive system suppresses rumble and cogging while ensuring rotational speed precision and a prolonged service life. A separate tonearm motor helps maintain this rotational precision while increasing tonearm trackability. The design of the statically-balanced J-shaped tonearm serves as an inside force canceller while enhancing trackability. To ensure extra precision in rotational speed control, a stroboscope was built into the RP-5100H/HB to detect even small fluctuations in speed and to compensate for them instantly. The pitch control, in combination with the stroboscope, can be employed to make fine adjustments in the turntable rotating speed.

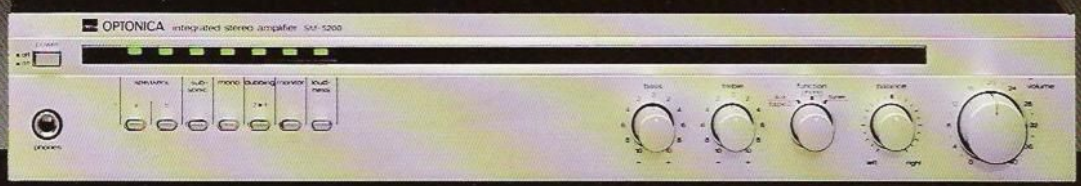
AD-200TH/THB

Programmable Quartz Timer

This quartz timer controls the 5200 Series and is explained on page 5.

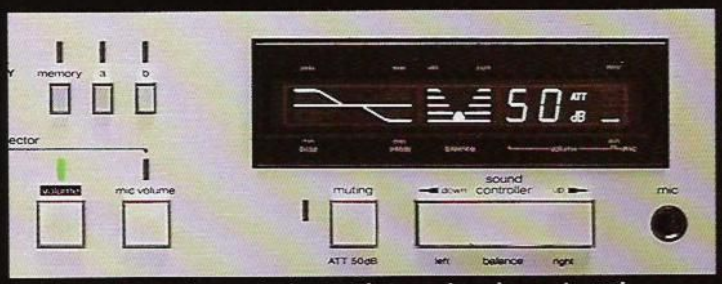




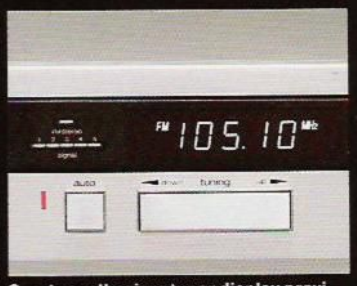


Models with H/HB following the model number are available in brown metallic as well as in silver metallic.

OPTONICA System 105



Tone, balance, mic volume and volume settings are shown in easy-to-read graphic displays.



Quartz synthesizer tuner display provides clear indication of FM, MW and LW stations.

SM-105H

Straight DC Stereo Integrated Amplifier with Fully Electronic Control System

2 x 50W RMS output power (1kHz at 4 ohms with 0.01% T.H.D.). This perfectly "straight" amp is a result of Optonica's efforts to provide a fully digital system based on a lead-less and contact-less design. A combination of fully direct-coupled amplifier circuitry and fully electronic controls for tone, volume and balance completely eliminated the use of lead wires to improve frequency response. Conventional mechanical controls were replaced with electronic circuitry to eliminate contacts. Microcomputer-controlled circuitry splits up the signal to ensure more precise tone control and offer a wider dynamic range, better signal-to-noise ratio, lower distortion and greater durability. A full remote control system, unique graphic displays and an innovative sound memory system were added to match the outstanding performance of this amp.

ST-105H

Microcomputer-Controlled Quartz PLL Synthesizer FM/MW/LW Stereo Tuner

FM DIN sensitivity (mono, 40kHz dev., S/N 26dB): 1.6μV. Optimum reception with maximum convenience are combined in this blend of precision electronic systems and state-of-the-art component parts. Designed to eliminate error and drift, this advanced electronic tuner employs a quartz PLL synthesizer tuning system to ensure super-precise, super-stable reception under all conditions. This precision is backed by an electronic input attenuator, a dual-gate MOS FET front end, ceramic IF filters and a quadrature detector. A microcomputer controls both the auto search and station memory tuning systems to provide automatic location of receivable stations and one-touch tuning of favourite stations. A remote control station selection system, digital frequency display and air check calibrator function facilitate optimum use of this advanced tuner.

RT-105H

Stereo Cassette Tape-Deck with Microcomputer Full Logic Control System

Wow & Flutter: ±0.20% (DIN 45 500) Greater reliability and convenience in the transport system of the RT-105H are brought about by digital control technology. A microcomputer-controlled full logic system not only makes operation easier for you, it also makes it easier on the deck's transport mechanism through soft-touch control and direct switching of modes. APSS is provided for one-touch skipping or repetition of desired selections, while the auto space con-

*"Dolby" and the "Double-D" symbol are trademarks of Dolby Laboratories, Inc.

trol uses digital circuitry for the insertion of blank spaces between songs. A high-performance hard permalloy head ensures optimum performance with all types of tapes, including metal. Performance and convenience are further assured with Dolby* Noise Reduction circuitry, full-function remote control and peak level meters.

RP-105H

Fully-automatic Stereo Turntable with Double Direct Drive System

Wow & Flutter: ±0.06% (Din 45 507)

For superior performance, greater reliability and easier operation, electronic control systems are used throughout the RP-105H. Separate direct drive platter and tonearm motors assure extra-stable platter rotation plus maximum tonearm trackability. An electronic servo control maintains platter speed precision, while a microprocessor controls the operation of the tonearm. When the unit is turned off, a solenoid supports the tonearm and locks it in place. Electronic control systems are also used to protect the stylus in case of power failure and to handle cueing operations. The RP-105H also features remote control mode selection plus play/cue functions. The stylus is protected and extra operating procedures are eliminated by the auto record size/presence detector.

AD-105H

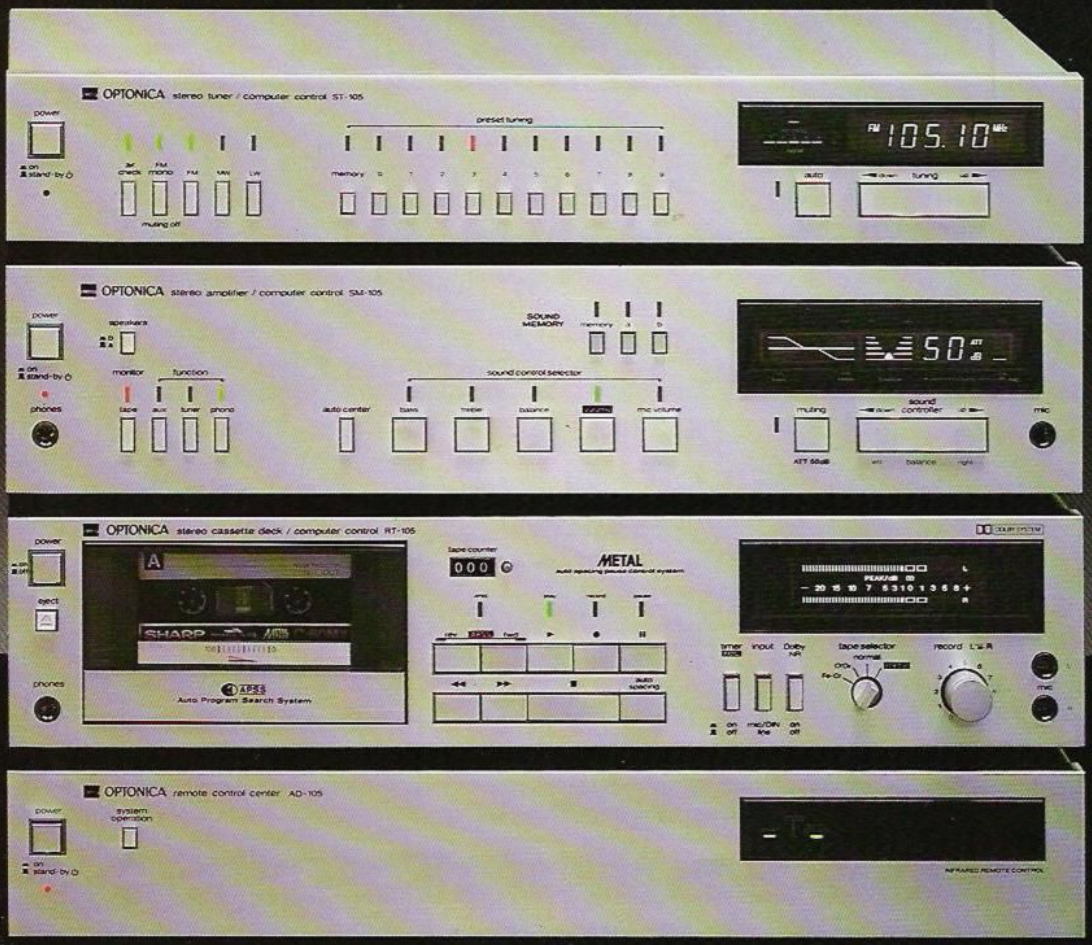
Remote Control Receiver/Control Centre

To match the high standards set by the rest of this performance- and convenience-oriented system, this full-function remote control receiver/control centre makes ample use of digital control technology. In addition to handling remote control signals for the entire audio system, this control centre also offers two AC outlets to allow programming of absentee recording operations when an optional timer is connected. The convenience afforded by this remote control receiver/control centre guarantees the utmost in digital-age control precision as well as digital-age audio performance.

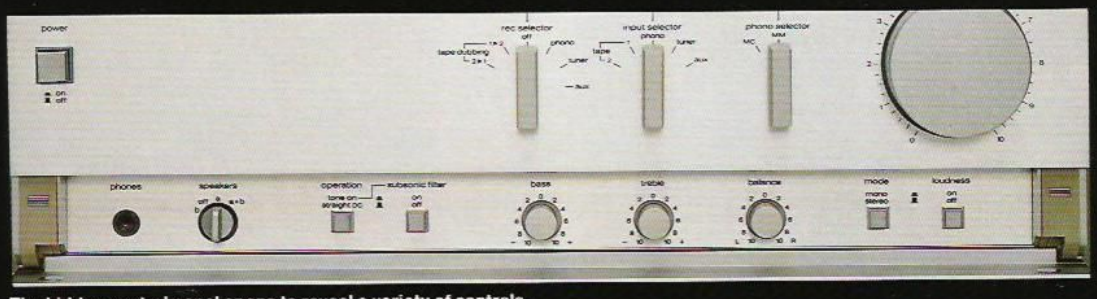
30-key remote control system allows seat-side control of all major system functions.

Remote Control Transmitter

A total of 30 keys are provided on this infrared remote control transmitter to enable control of all major system functions from the comfort of your listening position. A beep tone sounds to confirm activation when keys are depressed. The following keys are provided: a system on/off key, volume up and down keys, A and B sound memory keys, auto-centre key, sound-memory off key/auto-centre key, audio muting key, 10 preset tuner station memory keys, turntable mode and play/cue keys, and deck monitoring, play, stop, record, pause, auto space control, APSS forward and reverse, fast forward and rewind keys.



OPTONICA Amplifier SM-110H



The hidden control panel opens to reveal a variety of controls.

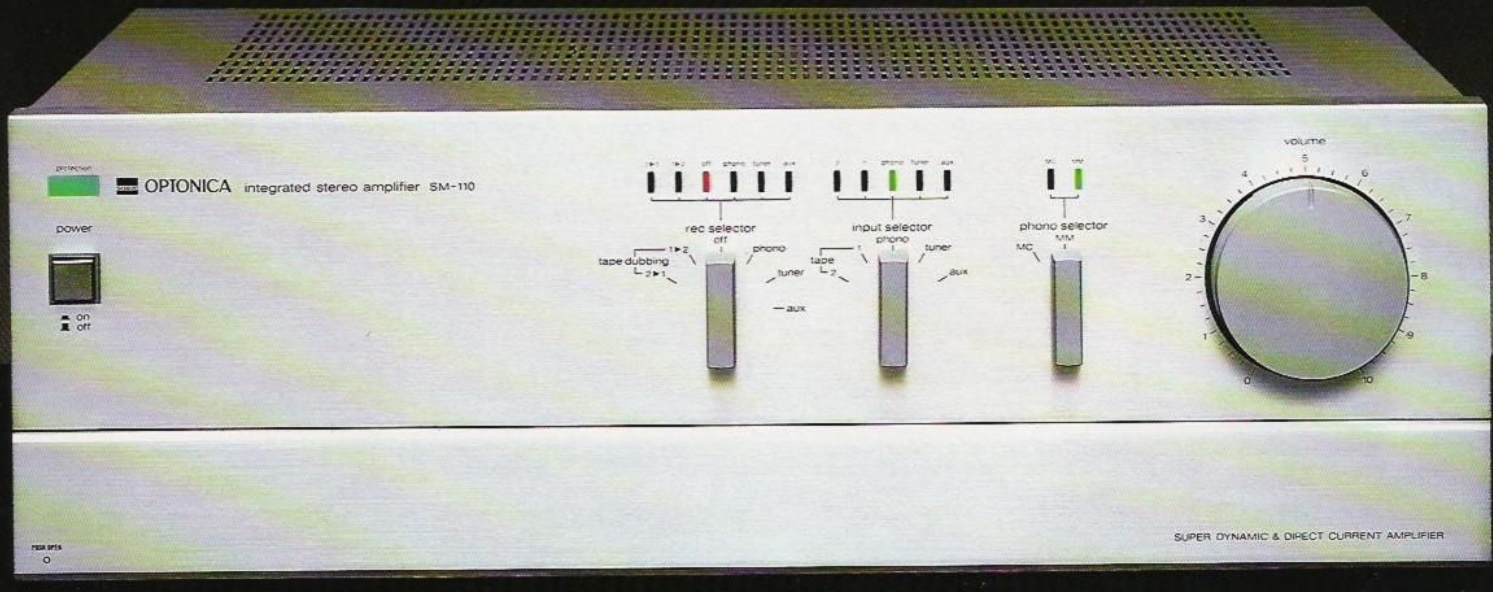
SM-110H

Integrated Stereo Amplifier with Zero Switching System

2 x 100W RMS output power (1kHz at 4 ohms with 0.01% T.H.D.).

This high-efficiency zeroswitching amp employs Optonica's advanced semiconductor technology and innovative spikeless amplifier design to eliminate switching distortion and ensure low thermal loss. With a zero-switching system controlling each output transistor, just enough current is provided to prevent cutoffs and the resulting distortion. The OCL/ICL (output capacitorless/input capacitorless) preamplifier stage with differential FET and DC servo control ensure the most accurate possible signal at all frequencies. The more than ample power rating of this unit is supplied without distortion, while innovative DC servo circuitry provides all the advantages of a DC amplifier and eliminates the adverse effects of output capacitors. The DC servo equalizer makes it unneccessary to employ a step-up transformer or head amplifier when using a moving-coil cartridge. A remote action switch has allowed the input and output connections to be placed as close as possible to pre-amplifier and power output stages to reduce noise generation at the input and speaker output connections. REC OUT selection is simplified and totally unaffected by the position of the input selector. A full range of controls essential to tailoring the response of a stereo system are provided. The system is safeguarded by an automatic protection circuit.

- Zero-switching output circuitry and a spikeless amplifier design combine to eliminate distortion caused by power stage cutoff while maintaining output efficiency.
- Straight DC servo circuitry eliminates all coupling elements, including output capacitors, to eliminate distortion.
- The DC servo equalizer makes it unnecessary to employ a step-up transformer or head amplifier when using a moving-coil cartridge.
- The MC/MM phono selector switch allow you to take advantage of either type of cartridge.
- Remote action switch suppresses noise generated at input and output connections.
- Separate REC OUT and input selectors allow extra recording and listening versatility.
- The full range of controls includes loudness, subsonic filter and mode switches plus 11 click-stop bass and treble controls.
- The 4-position speaker selector provides a variety of listening arrangements with two speaker systems.
- The automatic protection circuit shuts off the output stage of the amplifier to prevent damage to the amp and speakers, and indicates circuit status with a 2-colour LED.



OPTONICA Double Cassette Tape Deck

Double cassette construction provides one section for recording/erasing and one for playback.

RT-7070H/HB

Double Recording/Playback Stereo Cassette Tape-Deck with Dual Dolby* and APSS

Wow & Flutter: ±0.15% (DIN 45 500)

To conquer the performance problems of conventional cassette decks, Optonica divided the functions of a deck into recording and playback systems and created the RT-7070H/HB. Two independent transport systems driven by separate FG servo DC motors are incorporated, each with its own compartment and amplifier. The separate transport used only for recording features a wide-gap Sendust-and-Sendust recording head that provides high recording sensitivity, good linear response and wide dynamic range. The 2-stage direct-coupled NPN/PNP amp for the recording section offers high saturation, extreme linearity and wide dynamic range. The playback section is equipped with an ultra-narrow-gap Sendust-and-Sendust playback head that results in an absolute minimum of gap signal loss while optimizing frequency response across the frequency range. This section has a 3-stage ICL amplifier with state-of-the-art FET circuitry that eliminates the need for distortion-causing coupling capacitors. Dubbing can be performed with none of the loss in quality usually associated with cables and hook-up jacks. Each compartment has its own Dolby* Noise Reduction system.

The RT-7070H/HB is equipped with APSS for one-touch skipping or repetition of desired selections, a record-mute button for one-touch editing, a 4-position tape selector to provide the correct settings for metal, CrO_2, FeCr and normal tapes. Digital meters display accurate input levels and have a peak hold function.

- Transports for recording/erase and playback are driven by separate FG servo DC motors to ensure stable motor speed.
- Since each section performs only its assigned functions, the tape-heads could be aligned with the transport system for optimum tape alignment.
- A wide-gap Sendust-and-Sendust head to assure high recording sensitivity is used for recording, while a double-gap head is provided for erasing to guarantee clean response.
- For the playback section, an ultra-narrow-gap Sendust-and-Sendust head keeps gap signal loss to a minimum and optimizes frequency response.
- The two perfectly matched tape compartments allow high quality dubbing for Tape 1 to Tape 2, while the three-mode level control function facilitates dubbing.
- Dolby* Noise Reduction circuitry is provided for each tape compartment to reduce tape hiss. The MPX filter can be used to ensure optimum FM Dolby recordings.
- APSS permits playback of desired selections at the touch of a button.
- Metal tape capability allows you to make use of the greatly extended frequency response, increased dynamic range and lower distortion of metal tapes.

The RT-7070H/HB is available in brown metallic as well as in silver metallic.

*"Dolby" and the "Double-D" symbol are trademarks of Dolby Laboratories, Inc.

OPTONICA Speaker Systems

CP-9100HW

3-Way In-Line Bass Reflex Speaker System with All-Mica Cones

Maximum input power: 180W. Even under varying ambient conditions, the new all-mica cones used as the 30cm woofer, 10cm midrange and 5cm tweeter in this sophisticated 3-way in-line system guarantee increased response and sound uniformity without cone break-up, generation of noise or suppression of peaks. The in-line driver layout and bass reflex enclosure improve phase and directional characteristics while boosting bass response. A unique tweeter protector automatically cuts the power to the tweeter if an overload occurs. Tweeter and midrange controls add flexibility in tailoring system response.

CP-7100HW

3-Way In-Line Bass Reflex Speaker System with All-Mica Cones

Maximum input power: 100W. Optonica's new all-mica cone drivers produce crisp, powerful

Mica cones improved durability, flexibility and strength in several Optonica speaker systems.

sound without noticeable deviation caused by changes in ambient temperatures. The in-line layout of the 25cm woofer, 10cm midrange and 5cm tweeter ensures that the entire spectrum of sound is transmitted uniformly throughout the listening area. Bass response is substantially enhanced by the bass reflex enclosure, which also improves phase and directional characteristics. The tweeter is safeguarded by a unique tweeter protector. Level controls allow precise adjustments to be made in midrange and tweeter performance.

CP-5100HW

3-Way In-Line Bass Reflex Speaker System

Maximum input power: 60W. A unique cone paper composed of beating pulp and high-grade bast fibre is used in the diaphragms of all the speakers in the CP-5100HW. This B&B cone paper ensures extra strength, durability and resistance to changes in ambient humidity and temperature conditions. The 25cm woofer, 10cm midrange and 8cm tweeter are arranged in an in-line configuration to improve directional and phase characteristics. The bass reflex structure enhances bass response for increased audio impact. Tweeter performance is ensured by a unique tweeter protector. Midrange and tweeter level controls allow precise adjustments to be made in system response.

CP-1717HW

3-Way In-Line Closed Type Speaker System

Maximum input power: 110W. Clean, faithful reproduction

Optonica's advanced crossover network enhances frequency response while suppressing phase distortion.

throughout the entire frequency range is ensured by the 21.8cm corrugated paper woofer, 37cm dome midrange and 2.5cm dome tweeter. The low-distortion woofer can handle exceptionally high input and still deliver amazingly clean stereo that never sounds harsh. The soft dome midrange and tweeter generate ample volume while maintaining precision response and eliminating distortion. An in-line driver layout guarantees even distribution of the entire spectrum of sound throughout the listening area.

Optonica also designed a special crossover network to enhance performance in its mini speaker systems.

CP-2711HW

3-Way Mini Speaker System

Maximum input power: 150W. Top quality sound over an exceptionally wide frequency range is delivered by the 20.0cm high-quality cellulose woofer, 50cm midrange and 2.5cm tweeter. The utmost in distortion-free sensitivity at require volume levels is ensured by the soft dome construction of the midrange driver. Extra-large speaker magnets designed for high efficiency and low distortion are also able to boost directional characteristics in this mini speaker system. The crossover network incorporated in the CP-2711HW minimizes phase fluctuation and ensures extended frequency response with minimum distortion.

CP-2323HW/HB

3-Way Mini Speaker System

Maximum input power: 150W. The unique construction of the 17.7cm woofer, 3.7cm midrange and 2.5cm tweeter permits exceptionally high-input plus a superior frequency response. The woofer is surrounded by a specially-developed soft rubber "collar" that ensures a flat response across the entire frequency range. The low-distortion performance of the woofer is further enhanced by the incorporation of extra-large magnets that ensure higher efficiency and lower distortion. The dome construction of the midrange and tweeter significantly improved directional characteristics to round off system performance.

CP-2511HW

3-Way Mini Speaker System

Maximum input power: 120W. Extra-large magnets are incorporated in all three drivers in this mini speaker system to ensure exceptional reproduction across a wide frequency range with high efficiency and low distortion. The high-quality 16.9cm woofer is surrounded by a soft foam "collar" that ensures a flat response across the entire frequency range. The 3.0cm soft-dome midrange and 2.5cm soft-dome tweeter are designed to provide undistorted sound at required volume levels with a high degree of sensitivity. The combination of this dome construction and extra-large magnets also serves to improve directional characteristics in this quality mini speaker system.

CP-2311HW

2-Way Mini Speaker System

Maximum input power: 100W. The CP-2311HW delivers constant, undistorted reproduction that is of unusually high quality for a speaker system of this size. The special design of the extra-large magnets used in the 2.5cm tweeter and 12.7cm woofer ensures high efficiency plus low distortion. The soft-dome tweeter was developed to deliver sound at the desired volume level without distortion. This construction also acts to improve directional characteristics. Superior reproduction in the low and mid frequency ranges is also ensured by the soft PVC "collar" that surrounds the high-efficiency woofer in this mini speaker system.

Soft-dome midranges deliver undistorted sound at desired volume levels and also serve to improve directional characteristics.

SY-710S/SY-910S

Optional Speaker Stands

Speaker stands improve bass characteristics by preventing sound from bouncing off the floor and causing phase distortion. The SY-710S stand is designed for use with Optonica speaker models CP-7100HW, CP-5100HW and CP-1717HW, while the SY-910S was designed exclusively for use with the CP-9100HW speaker system.

CP-9100HW

CP-1717HW

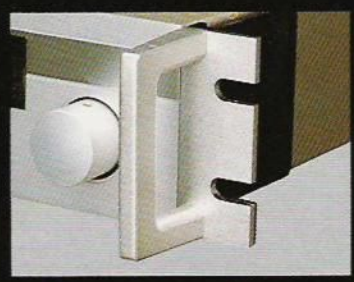
CP-2311HW

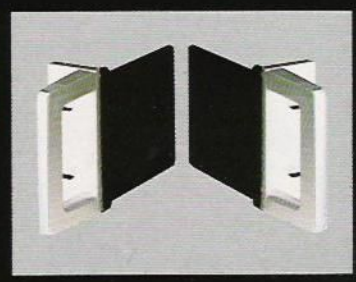
CP-2323HW

OPTONICA Audio Racks and Accessories

Optonica Handles

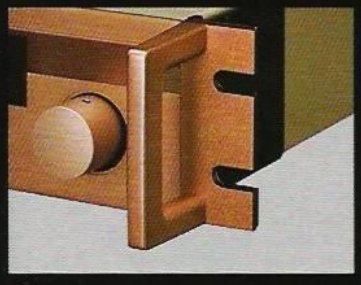
These specially contoured handles for Optonica slim-line stereo components make it easier to use racks and add an attractive appearance to the components.

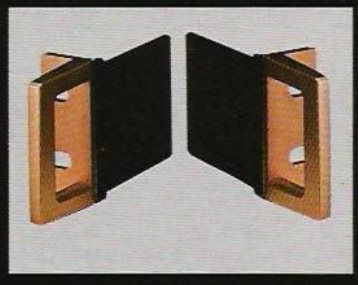




SY-7000HW

SY-9100HW





Model No	Matching Optonica Components
PN-901	SM-5200H, ST-5200H, ST-7100H, SO-9100H, SX-9100H, ST-9100H, AD-200TH
PN-901B	SM-5200HB, ST-5200HB, SM-7100HB, ST-7100H, SO-9100HB, SX-9100HB, ST-9100HB, AD-200THB
PN-902	RT-7100H, RT-9100H
PN-902B	RT-7100HB, RT-9100HB
PN-904	RT-5200H, RT-7000H
PN-904B	RT-5200HB, RT-7000HB

SY-7000HW
Wooden Audio Rack
This space-saving upright-style audio rack features record storage space and a stylish design to complement the decor of any room.

SY-7200HW
Wooden Audio Rack
The woodgrain vinyl finish of this horizontal-style audio rack makes it an attractive addition to any room.

SY-9100HW
Wooden Audio Rack
The design of this upright-style audio rack allows it to fit into a small space while compactly holding the components of an audio system.

SY-7200HW

MC-65CL
The Optonica 1-point stereo microphone with mini plug plus adaptor can be used with the Optonica RT-9100/HB, RT-7100H/HB, RT-7070/HB, RT-7000/HB, RT-5200H/HB and RT-105H cassette decks.

Specifications

Amplifiers			
		SO-9100H/HB	SX-9100H/HB
Amplifier Section			
Music output power		– –	2 x 180W at 4 ohms, 0.005% THD 2 x 120W at 8 ohms, 0.005% THD
Continuous (RMS) output power (Both channels driven)	1kHz 20Hz – 20kHz	– – – –	2 x 130W at 4 ohms, 0.005% THD 2 x 90W at 8 ohms, 0.005% THD 2 x 110W at 4 ohms, 0.010% THD 2 x 80W at 8 ohms, 0.005% THD
Total harmonic distortion	rated power half power	– –	0.005% 0.005%
Intermodulation distortion (50/7000Hz 4:1)	rated power half power	– –	0.009% 0.006%
Power bandwidth (IHF)		–	10Hz – 50kHz (0.005% THD)
Frequency response	phono tuner, aux., tape	RIAA curve deviation ± 0.2dB 5Hz – 80kHz (+0dB, –2dB)	– DC – 70kHz (± 1.5dB)
Damping factor (1kHz, 4 ohms)		–	35
S/N ratio (IHF,A)	phono-1 phono-2 phono-3 phono-MM phono-MC aux.	84dB 84dB 76dB – – 100dB	– – – – – 110dB (main-in)
S/N ratio (2 x 50mW)	phono-1 phono-2 phono-3 phono-MM phono-MC aux.	– – – – – –	– – – – – 95dB (main-in)
Phono overload level (1kHz)		300mV RMS (phono-1/2) 25mV RMS (phono-3) MC	– –
Tone control	bass (100Hz) treble (10kHz)	± 10dB ± 8dB	– –
Loudness control	at 100Hz at 10kHz	+ 7dB + 4dB	– –
Filter	low – high –	15Hz, (–6dB/oct.) 30Hz, (–6dB/oct.) 8kHz, (–6dB/oct.) 15kHz, (–6dB/oct.)	– – – –
Audio muting		–20dB	–
Input sensitivity/impedance	phono-1 phono-2 phono-3 phono-MM phono-MC aux. tuner tape-1 (CINCH) tape-1 (DIN) tape-2 (CINCH) tape-2 (DIN) main-in	3mV/47k ohms, 200pF 3mV/22/47/100k ohms, 200/300/400pF 0.3mV/100 ohms – – 150mV/47k ohms 150mV/47k ohms 150mV/47k ohms – 150mV/47k ohms 150mV/47k ohms –	– – – – – – – – – – – 800mV/22k ohms
Output level/impedance	speakers headphones tape-1 (CINCH) tape-1 (DIN) tape-2 (CINCH) tape-2 (DIN)	– – 150mV/47k ohms – 150mV/47k ohms 30mV/82k ohms	A,B (4 – 16 ohms), A+B (8 – 16 ohms) Low impedance (4 – 16 ohms) – – – –
General			
Power source		110/220/240V, 50/60Hz AC	110/220/240V, 50/60Hz AC
Power consumption		25W (220V)	900W (220V)
Dimensions	width height depth	430mm 75mm or 72.5mm selectable 382 mm	430mm 75mm or 72.5mm selectable 447mm
Weight		7kg	15kg
Front panel colour		SO-9100H silver SO-9100HB brown	SX-9100H silver SX-9100HB brown
Optional Accessory		Handle PN-901/901B	Handle PN-901/901B

SM-7100H/HB	SM-5200H/HB	SM-110H	SM-105H
2 x 135W at 4 ohms, 0.005% THD 2 x 85W at 8 ohms, 0.005% THD	2 x 68W at 4 ohms, 0.09% THD 2 x 45W at 8 ohms, 0.09% THD	2 x 140W at 4 ohms, 0.01% THD 2 x 100W at 8 ohms, 0.01% THD	2 x 77W at 4 ohms, 0.01% THD (–22dB Att) 2 x 60W at 8 ohms, 0.008% THD (–22dB Att)
2 x 70W at 4 ohms, 0.005% THD 2 x 60W at 8 ohms, 0.005% THD 2 x 65W at 4 ohms, 0.030% THD 2 x 60W at 8 ohms, 0.030% THD	2 x 40W at 4 ohms, 0.09% THD 2 x 33W at 8 ohms, 0.09% THD 2 x 38W at 4 ohms, 0.15% THD 2 x 30W at 8 ohms, 0.09% THD	2 x 100W at 4 ohms, 0.01% THD 2 x 70W at 8 ohms, 0.01% THD 2 x 85W at 4 ohms, 0.05% THD 2 x 65W at 8 ohms, 0.05% THD	2 x 50W at 4 ohms, 0.01% THD (–22dB Att) 2 x 40W at 8 ohms, 0.008% THD (–22dB Att) 2 x 45W at 4 ohms, 0.05% THD (–22dB Att) 2 x 37W at 8 ohms, 0.02% THD (–22dB Att)
0.005% 0.003%	0.09% 0.03%	0.01% 0.007%	0.01% (–22dB Att) 0.01% (–22dB Att)
0.02% 0.01%	0.09% 0.03%	0.01% 0.007%	0.02% (–22dB Att) 0.02% (–22dB Att)
5Hz – 40kHz (0.05% THD)	10Hz – 30kHz (0.15% THD)	10Hz – 50kHz (0.05% THD)	10Hz – 35kHz (0.1% THD) (–22dB Att)
RIAA curve deviation ± 0.3dB DC-80kHz (+0dB, –1.5dB)	RIAA curve deviation ± 0.4dB 10Hz – 65kHz (+1dB, –3dB)	RIAA curve deviation ± 0.3dB 0Hz – 80kHz (+0dB, –2dB)	RIAA curve deviation, 40Hz – 20kHz (± 0.3dB) 7Hz – 100kHz (+0dB, –3dB)
35	20	100 (1kHz, 8 ohms)	20
80dB – – – – 95dB	70dB – – – – 90dB	– – – 83dB 63dB 103dB	78dB – – – – 95dB
70.8dB 70.8dB – – – 70.8dB	65dB – – – – 70dB	– – – 50dB 50dB 50dB	– – – – – –
300mV RMS (phono-1/2) –	150mV RMS (phono-1) –	130mV RMS (phono-MM) 13mV RMS (phono-MC)	130mV RMS (phono-1) –
± 10dB ± 9dB	± 10dB ± 10dB	± 10dB ± 10dB	± 8dB ± 8dB
+ 7dB + 4dB	+ 6dB + 4dB	± 6dB ± 4dB	– –
15Hz, (–6dB/oct.) 30Hz, (–6dB/oct.) 8kHz, (–6dB/oct.) 15kHz, (–6dB/oct.)	30Hz (–6dB/oct.) – – –	30Hz (–6dB/oct.) – – –	– – – –
–20dB	–	–	ATT –50dB (fixed)
2.8mV/47k ohms, 250pF 2.8mV/47k ohms, 250pF – – – 150mV/47k ohms 150mV/47k ohms 150mV/47k ohms – 150mV/47k ohms 150mV/47k ohms 830mV/10k ohms	2.3mV/47k ohms, 120pF – – – – 150mV/47k ohms 150mV/47k ohms 150mV/47k ohms 150mV/47k ohms – – –	– – – 2.3mV/47k ohms, 250pF 0.23mV/100 ohms 150mV/47k ohms 150mV/47k ohms 150mV/47k ohms 150mV/47k ohms 150mV/47k ohms 150mV/47k ohms –	2.3mV/47k ohms, 120pF – – – – 140mV/10k ohms 140mV/10k ohms 140mV/10k ohms 140mV/10k ohms – – –
A,B (4 – 16 ohms), A+B (8 – 16 ohms) Low impedance (4 – 16 ohms) 150mV/47k ohms – 150mV/47k ohms 30mV/82k ohms	A,B (4 – 16 ohms), A+B (8 – 16 ohms) Low impedance (4 – 16 ohms) 150mV/47k ohms 60mV/82k ohms – –	A,B (4 – 16 ohms), A+B (8 – 16 ohms) Low impedance (4 – 16 ohms) 150mV/47k ohms 60mV/82k ohms 150mV/47k ohms 60mV/82k ohms	A,B (4 – 16 ohms) Low impedance (4 – 16 ohms) 150mV/220 ohms 45mV/ 80k ohms – –
110/220/240V, 50/60Hz AC	110/220/240V, 50/60Hz AC	110/220/240V, 50/60Hz AC	110/220/240V, 50/60Hz AC
500W (220V)	330W (220V)	500W (220V)	400W (220V)
430mm 75mm or 72.5mm selectable 382mm	430mm 75mm or 72.5mm selectable 382mm	430mm 141mm 387mm	430mm 95mm 320mm
10.8kg	7.7kg	10.7kg	7.8kg
SM-7100H silver SM-7100HB brown	SM-5200H silver SM-5200HB brown	SM-110H silver –	SM-105H silver –
Handle PN-901/901B	Handle PN-901/901B	–	–

Cassette Tape-Decks

		RT-9100H/HB	RT-7100H/HB
Mechanical Section			
Motor	capstan drive	2-motor drive system Quartz-locked PLL servo motor	2-motor drive system FG servo DC-motor
	reel drive	2-speed FG servo motor	2-speed FG servo DC-motor
Heads	record/playback	Dual sendust combination head	Sendust
	erase	Double-gap ferrite	Ferrite
	others	APMS sensing head	–
Wow and flutter		± 0.12% (DIN 45 500) 0.038% WRMS	± 0.14% (DIN 45 500) 0.04% WRMS
Tape speed deviation		± 0.8%	± 1.0%
FF/REW time		110 sec. (C-60)	110 sec. (C-60)
Audio Section			
Frequency response	Normal position	20 – 16,000Hz (DIN 45 500) 30 – 16,000Hz ± 3dB	20 – 15,000Hz (DIN 45 500) 30 – 15,000Hz ± 3dB
	CrO_2 position	20 – 18,000Hz (DIN 45 500) 30 – 18,000Hz ± 3dB	20 – 17,000Hz (DIN 45 500) 30 – 17,000Hz ± 3dB
	Fe-Cr position	20 – 20,000Hz (DIN 45 500) 30 – 19,000Hz ± 3dB	20 – 18,000Hz (DIN 45 500) 30 – 17,000Hz ± 3dB
	Metal position	20 – 20,000Hz (DIN 45 500) 30 – 20,000Hz ± 3dB	– –
S/N ratio (Fe-Cr tapes)	Dolby NR off Dolby NR on	57dB 67dB at over 5kHz	57dB 67dB at over 5kHz
Recording system		AC bias (105kHz)	AC bias (85kHz)
Erase system		AC erase (105kHz)	AC erase (85kHz)
Input sensitivity/impedance	mic. line-in record/playback (DIN)	0.2mV/6.8k ohms 50mV/50k ohms 0.1mV/10k ohms	0.2mV/6.8k ohms 63mV/50k ohms 0.1mV/6.8k ohms
Output level/impedance	line-out record/playback (DIN) headphones	1,000mV/50k ohms at 0dB 1,000mV/50k ohms at 0dB 125mV/8 ohms at 0dB	1,000mV/50k ohms at 0dB 1,000mV/50k ohms at 0dB 125mV/8 ohms at 0dB
General			
APSS/APLD/APMS		APSS/APMS	APSS/APMS
Remote control		yes	no
Power source		110/220/240V, 50/60Hz AC	110/220/240V, 50/60Hz AC
Power consumption		43W (220V)	40W (220V)
Dimensions	width height depth	430mm 144mm or 140mm selectable 371mm	430mm 144mm or 140mm selectable 371mm
Weight		12.5kg	11.5kg
Front panel colour		RT-9100H silver RT-9100HB brown	RT-7100H silver RT-7100HB brown
Accessory		RCA PIN cord x2, Remote control unit with batteries	RCA PIN cord x2
Optional Accessories		Stereo one point microphone MC-65CL Handle PN-902/902B	Stereo one point microphone MC-65CL Handle PN-902/902B

Audio-Racks

		SY-9100HW	SY-7200HW
Dimensions	width height depth	540mm 1039mm 450mm	1008mm 746mm 450mm

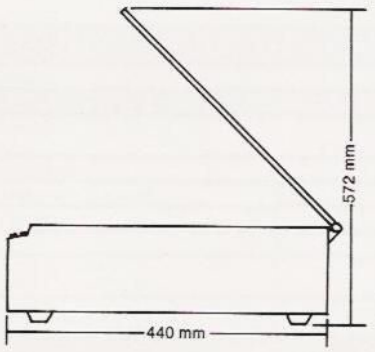
RT-7000H/HB	RT-7070H/HB	RT-5200H/HB	RT-105H
2-motor drive system FG servo DD-motor Electronically-controlled DC-motor	— FG servo DC-motor (Tape 1) FG servo DC-motor (Tape 2)	2-motor drive system Electronically-controlled DC-motor Hight torgue DC-motor	— — Electronically-controlled DC motor
Sendust Double-gap ferrite —	Narrow-gap sendust head (for playback) (tape 1) Double-gap ferrite head (for erase) (tape 2) Wide-gap sendust head (for recording & monitor)	Hard permalloy Double-gap ferrite —	Hard permalloy Double-gap ferrite —
± 0.13% (DIN 45 500) 0.04% WRMS	± 0.15% (DIN 45 500) 0.04% WRMS	± 0.18% (DIN 45 500) 0.058% WRMS	± 0.20% (DIN 45 500) 0.07% WRMS
± 1.0%	± 1.0%	± 1.5%	± 2%
110 sec. (C-60)	110 sec. (C-60)	110 sec. (C-60)	110 sec. (C-60)
30 – 15,000Hz (DIN 45 500) 30 – 14,000Hz ± 3dB 30 – 17,000Hz (DIN 45 500) 30 – 16,000Hz ± 3dB 30 – 17,000Hz (DIN 45 500) 30 – 16,000Hz ± 3dB 30 – 18,000Hz (DIN 45 500) 30 – 17,000Hz ± 3dB	20 – 16,000Hz (DIN 45 500) 30 – 16,000Hz ± 3dB 20 – 18,000Hz (DIN 45 500) 30 – 18,000Hz ± 3dB 20 – 19,000Hz (DIN 45 500) 30 – 19,000Hz ± 3dB 20 – 20,000Hz (DIN 45 500) 30 – 20,000Hz ± 3dB	40 – 14,000Hz (DIN 45 500) 40 – 13,000Hz ± 3dB 40 – 16,000Hz (DIN 45 500) 40 – 15,000Hz ± 3dB 40 – 16,000Hz (DIN 45 500) 40 – 15,000Hz ± 3dB 40 – 17,000Hz (DIN 45 500) 40 – 16,000Hz ± 3dB	40 – 14,000Hz (DIN 45 500) 40 – 13,000Hz ± 3dB 40 – 16,000Hz (DIN 45 500) 40 – 15,000Hz ± 3dB 40 – 16,000Hz (DIN 45 500) 40 – 15,000Hz ± 3dB 40 – 17,000Hz (DIN 45 500) 40 – 16,000Hz ± 3dB
57dB 67dB at over 5kHz	57dB 67dB at over 5kHz	56dB 66dB at over 5kHz	56dB 66dB at over 5kHz
AC bias (105kHz)	AC bias (105kHz)	AC bias (105kHz)	AC bias (105kHz)
AC erase (105kHz)	AC erase (105kHz)	AC erase (105kHz)	AC erase (105kHz)
0.2mV/6.8k ohms 50mV/50k ohms 0.2mV/6.8k ohms	— 50mV/50k ohms 1mV/10k ohms	0.2mV/6.8k ohms 50mV/50k ohms 0.2mV/6.8k ohms	0.2mV/6.8k ohms 50mV/50k ohms 0.2mV/6.8k ohms
1,000mV/50k ohms at 0dB 1,000mV/50k ohms at 0dB 125mV/8 ohms at 0dB	1,000mV/50k ohms at 0dB 1,000mV/50k ohms at 0dB 125mV/ 8 ohms at 0dB	710mV/50k ohms at 0dB 710mV/50k ohms at 0dB 89mV/ 8 ohms at 0dB	550mV/50k ohms at 0dB 550mV/50k ohms at 0dB 40mV/ 8 ohms at 0dB
APSS	APSS	APSS	APSS
no	no	no	yes
110/220/240V, 50/60Hz AC	110/220/240V, 50/60Hz AC	110/220/240V, 50/60Hz AC	110/220/240V, 50/60Hz AC
30W (220V)	20W (220V)	30W (220V)	25W (220V)
430mm 95mm 320mm	430mm 114mm 321mm	430mm 95mm 320mm	430mm 95mm 320mm
6.5kg	7.5kg	5.8kg	5.9kg
RT-7000H silver RT-7000HB brown	RT-7070H silver RT-7070HB brown	RT-5200H silver RT-5200HB brown	RT-105H silver —
RCA PIN cord x2	RCA PIN cord x2	RCA PIN cord x2	RCA PIN cord x2
Stereo one point microphone MC-65CL Handle PN-904/904B	Stereo one point microphone MC-65CL —	Stereo one point microphone MC-65CL Handle PN-904/904B	Stereo one point microphone MC-65CL —

SY-7000HW			
540mm 1059mm 450mm			

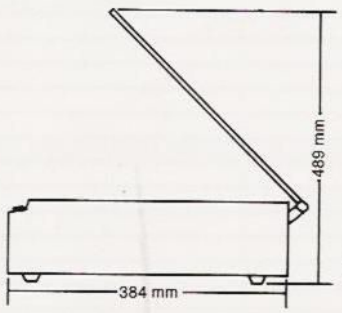
Tuners

		ST-9100H/HB	ST-7100H/HB
FM-Section			
Frequency range		87.5 – 108MHz	87.6 – 108MHz
Antenna input		75 ohms unbalanced 300 ohms balanced	75 ohms unbalanced 300 ohms balanced
Synthesizer tuner		yes	no
Span frequency		0.05MHz	–
Automatic tuning		yes	no
Pre-setting station		FM/AM total 10	–
Sensitivity (mono) DIN (40kHz dev., S/N 26dB)		1.0μV (75 ohms) 1.4μV (300 ohms)	1.0μV (75 ohms) 1.4μV (300 ohms)
Sensitivity (stereo) DIN (40kHz dev., S/N 46dB)		28μV (75 ohms) 38μV (300 ohms)	28μV (75 ohms) 38μV (300 ohms)
Total harmonic distortion (1kHz, 40kHz dev.)	mono normal mono wide stereo normal stereo wide	0.20% 0.16% 0.25% 0.22%	0.18% 0.16% 0.25% 0.22%
S/N ratio (1mV, 40kHz dev. 1kHz)	mono stereo	68dB 62dB	68dB 62dB
Frequency response		30Hz – 15kHz (+1.5dB, –3dB)	30Hz – 15kHz (+1.5dB, –3dB)
Image rejection (at 98MHz)		100dB	100dB
IF rejection (at 98MHz)		100dB	100dB
AM suppression (modulated 30% AM by 1kHz and 100% FM by 400 Hz)		50dB	50dB
Selectivity (± 300kHz, 40kHz dev.)	normal wide	55dB 30dB	55dB 30dB
Capture ratio	normal wide	2.5dB 1.5dB	2.5dB 1.5dB
Subcarrier suppression		50dB	50dB
Stereo separation 1kHz Stereo separation 10kHz	normal wide normal wide	40dB 42dB 30dB 30dB	40dB 42dB 30dB 30dB
AM Section			
Frequency range	MW LW	531 – 1,602kHz –	520 – 1,620kHz –
Antenna		Built-in ferrite bar antenna External antenna terminal	Built-in ferrite bar antenna External antenna terminal
Synthesizer tuner		yes	no
Span frequency		1kHz or 9kHz	–
Automatic tuning		yes	no
Pre-setting station		FM/AM total 10	–
Sensitivity	MW LW	316μV/m (S/N 20dB, 1,000kHz) –	400μV/m (S/N 20dB, 1,000kHz) –
Audio Section			
FM output (40kHz dev.)		350mV (fixed) 0 ~ 500mV (variable)	350mV (fixed) 0 ~ 500mV (variable)
AM output (30% mod.)		200mV (fixed) 0 ~ 290mV (variable)	200mV (fixed) 0 ~ 290mV (variable)
General			
Power source		110/220/240V, 50/60Hz AC	110/220/240V, 50/60Hz AC
Power consumption		30W (220V)	20W (220V)
Dimensions	width height depth	430mm 75mm or 72.5mm selectable 393mm	430mm 75mm or 72.5mm selectable 393mm
Weight		7kg	6.1kg
Front panel colour		ST-9100H silver ST-9100HB brown	ST-7100H silver ST-7100HB brown
Accessory		FM antenna, RCA PIN cord, Battery (UM – 3 x 4)	FM antenna, RCA PIN cord
Optional Accessories		Handle PN-901/901B	Handle PN-901/901B

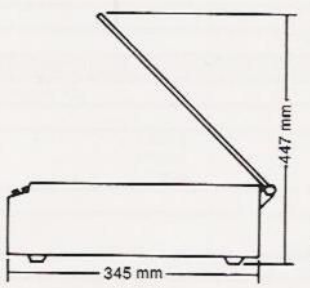
ST-5200H/HB	ST-105H
87.5 – 108MHz	87.5 – 108MHz
75 ohms unbalanced 300 ohms balanced	75 ohms unbalanced 300 ohms balanced
yes	yes
0.05MHz	0.05MHz
yes	yes
FM/AM total 10	FM/AM total 10
1.3μV (75 ohms) 1.6μV (300 ohms)	1.3μV (75 ohms) 1.6μV (300 ohms)
39μV (75 ohms) 45μV (300 ohms)	39μV (75 ohms) 45μV (300 ohms)
0.2% — 0.3% —	0.2% — 0.3% —
66dB 61dB	66dB 61dB
30Hz – 15kHz (+3dB, –3dB)	30Hz – 15kHz (+3dB, –3dB)
75dB	75dB
75dB	75dB
50dB	50dB
40dB —	45dB —
2.5dB —	2.5dB —
45dB	45dB
40dB — 30dB —	40dB — 30dB —
522 – 1,611kHz 137 – 372kHz	522 – 1,610kHz 150 – 372kHz
Built-in ferrite bar antenna External antenna terminal	Built-in ferrite bar antenna External antenna terminal
yes	yes
9kHz	auto 9kHz, manual 1kHz
yes	yes
FM/AM total 10	FM/AM total 10
350μV/m (S/N 20dB, 1,000kHz) 350μV/m (S/N 10dB, 220kHz)	350μV/m (S/N 20dB, 999kHz) 350μV/m (S/N 10dB, 218kHz)
350mV —	350mV (fixed) —
200mV —	200mV (fixed) —
110/220/240V, 50/60Hz AC	110/220/240V, 50/60Hz AC
18W (220V)	15W (220V)
430mm 75mm or 72.5mm selectable 393mm	430mm 71mm 298mm
5kg	3.4kg
ST-5200H silver ST-5200HB brown	ST-105H silver —
FM antenna, Battery (UM – 3 x 4), RCA PIN cord	FM antenna, RCA PIN cord
Handle PN-901/901B	—



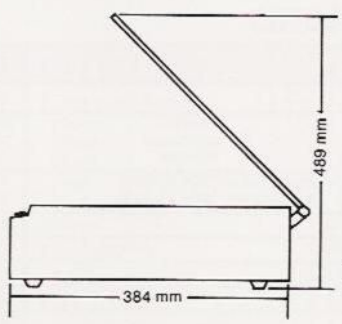
RP-9100H/HB



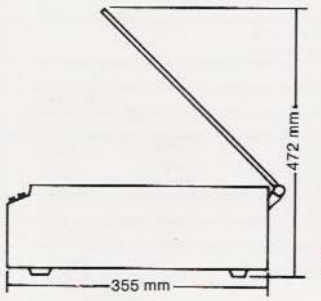
RP-7100H/HB



RP-5200H/HB



RP-5100H/HB



RP-105H

Turntables

	RP-9100H/HB	RP-7100H/HB
Type	Full-automatic with APMS	Full-automatic with APLD
Motor		
Motor	DC core-less motor with FG Servo control system	DC core-less motor with FG Servo control and quartz lock system
Drive system	Direct-drive system	Direct-drive system
Turntable platter	31cm Ø aluminum die-cast	30cm Ø aluminum die-cast
Speed	33–1/3, 45rpm	33–1/3, 45rpm
Speed control range	±4%	±4%
Wow and flutter	±0.045% (DIN 45 507) 0.028% WRMS (JIS C-5521)	±0.045% (DIN 45 507) 0.03% WRMS (JIS C-5521)
Rumble	48dB (DIN A) 68dB (DIN B)	48dB (DIN A) 68dB (DIN B)
Tonearm		
Type	Static-balanced J-shaped pipe arm	Static-balanced J-shaped pipe arm
Effective length	227mm	210mm
Overhang	15mm	11mm
Off-set angle	23°	19°
Cartridge weight range	4 – 11g	4 – 12g
Stylus pressure range	—	—
Cartridge		
Type	—	—
Principle	—	—
Output level	—	—
Frequency response	—	—
Channel separation	—	—
Channel balance	—	—
Recommended load impedance	—	—
Weight	—	—
Recommended stylus pressure	—	—
General		
Power source	110/220/240V, 50/60Hz	110/220/240V, 50/60Hz
Power consumption	20W	10W
Dimensions (width / height / depth)	480mm 135mm 440mm	480mm 108mm 384mm
Weight	11kg	9.0kg
Front panel colour	RP-9100H silver RP-9100HB brown	RP-7100H silver RP-7100HB brown
Accessories	EP adaptor, Remote control with batteries	EP adaptor

Speaker Systems

	CP-9100HW	CP-7100HW	CP-5100HW
Type	3-way bass-reflex type	3-way bass-reflex type	3-way bass-reflex type
Speaker (woofer / midrange / tweeter)	300mm mica cone 100mm mica cone 50mm mica cone	250mm mica cone 100mm mica cone 50mm mica cone	250mm B & B cone 100mm B & B cone 80mm B & B cone
Power handling capacity (Music input power (DIN 45 500) / RMS input power (DIN 45 573))	180W 130W	100W 70W	60W 45W
Rated impedance	4 ohms	4 ohms	4 ohms
Frequency response (DIN 45 500)	25 – 24,000Hz	30 – 25,000Hz	30 – 24,000Hz
Sensitivity (96dB/1m)	2.3W	3.0W	2.9W
Sound pressure level (1W/1m)	89.0dB	88.0dB	88.5dB
Crossover frequency	850Hz, 3.2kHz	1.2kHz, 3.3kHz	1.2kHz, 4.3kHz
Resonance frequency	26Hz	42Hz	42Hz
Controls: Mid-frequency level control / High-frequency level control	yes yes	yes yes	yes yes
Tweeter protector	yes	yes	yes
Front grill	detachable	detachable	detachable
Volume (litre)	60.2	46.1	41.1
Dimensions (width / height / depth)	390mm 680mm 300mm	340mm 600mm 305mm	320mm 580mm 305mm
Weight	22.6kg	16.5kg	15.8kg
Cabinet colour	walnut finish	walnut finish	walnut finish
Accessory	Sp. cord	Sp. cord	Sp. cord
Recommended matching Optonica amplifier	SM-5200H/HB SM-7100H/HB, SX-9100H/HB	SM-5200H/HB SM-7100H/HB	SM-5200H/HB
Optional Accessories	Speaker stand SY-910S	Speaker stand SY-710S	Speaker stand SY-710S

RP-5200H/HB	RP-5100H/HB	RP-105H	
Full-automatic	Full-automatic	Full-automatic	
DC core-less motor with FG (frequency generator) Servo control system	DC core-less motor with FG Servo control system	FG Servo motor	
Direct-drive system	Direct-drive system	Direct-drive system	
30cm Ø alum. die-cast with stroboscope	30cm Ø aluminum die-cast	30cm Ø aluminum die-cast	
33-1/3, 45rpm	33-1/3, 45rpm	33-1/3, 45rpm	
± 4%	± 4%	± 4%	
± 0.06% (DIN 45 507) 0.04% WRMS (JIS C-5521)	± 0.06% (DIN 45 507) 0.04% WRMS (JIS C-5521)	± 0.06% (DIN 45 507) 0.04% WRMS (JIS C-5521)	
45dB (DIN A) 65dB (DIN B)	45dB (DIN A) 65dB (DIN B)	47dB (DIN A) 65dB (DIN B)	
Static-balanced straight tonearm	Static-balanced J-shaped pipe arm	Static-balanced S-shaped tonearm	
215mm	210mm	215mm	
16mm	11mm	16mm	
23°	19°	23°	
4 – 8g	4 – 12g	4 – 10g	
—	1 – 3g	1 – 3g	
VM cartridge	VM type	Magnetic type	
—	Moving magnet	—	
3mV	3mV	7mV	
20Hz – 20kHz	20Hz – 20kHz	20Hz – 20kHz	
20dB	20dB	20dB	
2dB	3dB	3dB	
47k ohms	47k ohms, 100pF	47k ohms	
5.5g	5.5g	4.5g	
2g	2g	2g	
110/220/240V, 50/60Hz	110/220/240V, 50/60Hz	110/220/240V, 50/60Hz AC	
10W	12W	10W	
430mm 106mm 345mm	480mm 108mm 384mm	430mm 120mm 355mm	
5kg	8.5kg	7kg	
RP-5200H silver RP-5200HB brown	RP-5100H silver RP-5100HB brown	RP-105H silver —	
EP adaptor	EP adaptor	EP adaptor	

CP-1717HW	CP-2711HW	CP-2323HW/HB	CP-2511HW	CP-2311HW
3-way closed type	3-way closed type	3-way closed type	3-way closed type	2-way closed type
218mm 37mm 25mm	200mm 50mm 25mm	177mm 37mm 25mm	169mm 30mm 25mm	127mm — 25mm
110W 75W	150W 100W	85W 60W	120W 70W	100W 50W
4 ohms	4 ohms	4 ohms	4 ohms	4 ohms
33 – 23,000Hz	30 – 23,000Hz	35 – 24,000Hz	40 – 23,000Hz	45 – 23,000Hz
6.5W	9.5W	6.8W	10.7W	14.8W
87dB	86dB	86.5dB	85dB	83.5dB
1.1kHz, 3.3kHz	650Hz, 5.4kHz	900Hz, 5.8kHz	1.2kHz, 4.5kHz	1.8kHz
67Hz	63Hz	82Hz	90Hz	80Hz
no no	no no	no no	no no	no no
no	no	no	no	no
detachable	detachable	detachable	detachable	detachable
30.8	19.6	11.8	9.7	4.8
580mm 310mm 250mm	450mm 270mm 235mm	400mm 230mm 205mm	350mm 230mm 195mm	300mm 130mm 160mm
11.7kg	10kg	7.1kg	6.8kg	4.0kg
walnut finish	walnut finish	HW: walnut finish, HB: mat black	walnut finish	walnut finish
Sp. cord	Sp. cord	Sp. cord	Sp. cord	Sp. cord
SM-5200H/HB SM-7100H/HB	SM-5200H/HB SM-7100H/HB	SM-5200H/HB —	SM-5200H/HB SM-7100H/HB	SM-5200H/HB —
Speaker stand SY-710S	—	—	—	—

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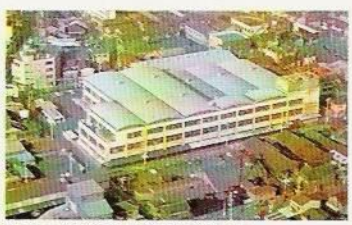

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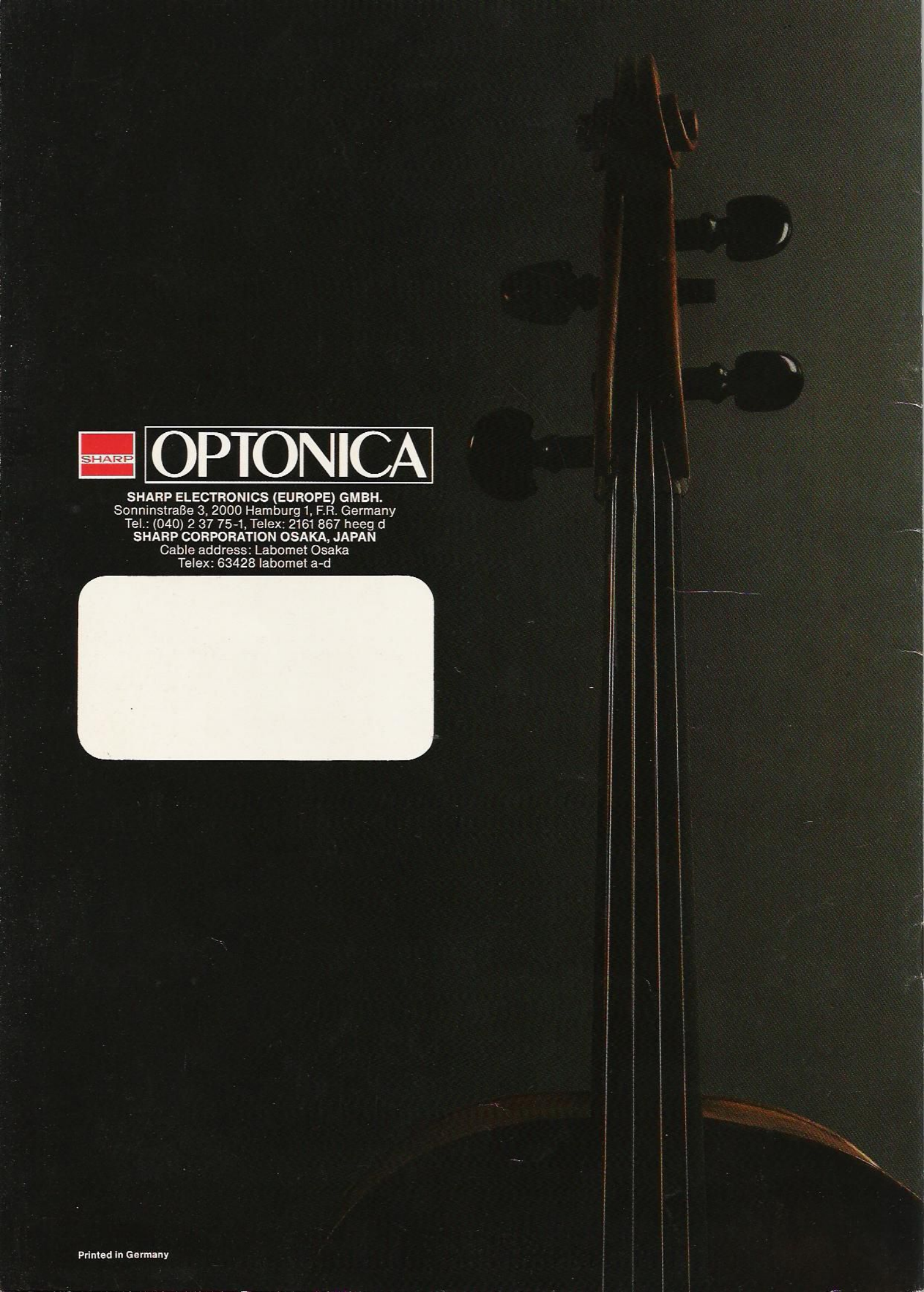

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